Water Transfers

Water transfers are defined in the Water Code as a temporary or long term change in the point of diversion, place of use, or purpose of use due to a transfer or exchange of water or water rights[1]. Many transfers, such as those among contractors of the SWP or CVP, do not fit this formal definition. A more general definition is that water transfers are a voluntary change in the way water is usually distributed among water users in response to water scarcity. Transfers can be from one party with extra water in one year to another who is water short that year. Transfers can be between water districts that are neighboring or across the state, provided there is a means to convey and store the water. Water transfers can be a temporary or permanent sale of a water right by the water right holder; a lease of the right to use water from the water right holder; or a sale or lease of a contractual right to water supply. Water transfers can also take the form of long-term contracts for the purpose of improving long-term supply reliability. Generally, water is made available for transfer by 5 major sources:

1. Transferring water from storage that would otherwise have been carried over to the following year. The expectation is that the reservoir will refill during subsequent wet seasons.
2. Pumping groundwater in lieu of using surface water delivery and transferring the surface water rights.
3. Transferring previously banked groundwater either by directly pumping and transferring groundwater or by pumping groundwater for local use and transferring surface water rights.
4. Making water available by reducing the existing consumptive use through crop idling/crop shifting or by water use efficiency measures.
5. Making water available by reducing return flows or seepage losses in conveyance systems that would otherwise be irrecoverable for reuse.

Water transfers are sometimes seen as merely moving water from one beneficial use to another. However, in practice many water transfers become a form of flexible system reoperation linked to many other water management strategies including surface water and groundwater storage, conjunctive management, conveyance efficiency, water use efficiency, water quality improvements, and planned crop shifting or crop idling. These linkages often result in increased beneficial use and reuse of water overall. One of the most valuable aspects of water transfers can be the flexibility to take advantage of different water management strategies and foster cooperation among water agencies. Transfers also provide a flexible approach to distributing available supplies for environmental purposes.

Current Water Transfers in California[2]

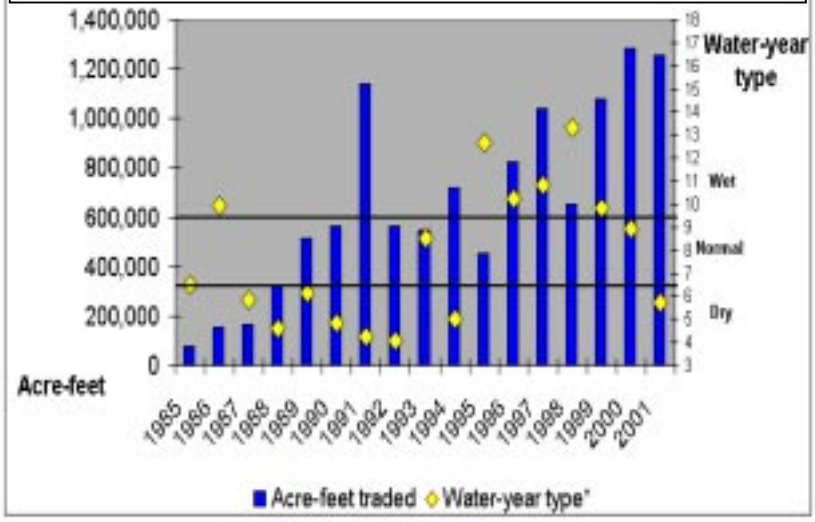
Statewide, water transfers have significantly increased since the mid-1980s. Temporary and long-term transfers between water districts increased from 80,000 acre-feet in 1985 to over 1,250,000 acre-feet in 2001 (see figure 1). About 80 percent of this volume is traded on a short-term basis, within the same year. The remaining 20 percent is considered long-term, for durations ranging from two to 35 years. Since 1998, there have been several permanent transfers of water rights and contracts with the Central Valley Project and the State Water Project for up to 175,000 acre-feet per year.

[1] Temporary water transfers, Section 1728 of the California Water Code, have a duration of one year or less. Long term water transfers, Section 1735 of the California Water Code, have a duration in excess of one year.

[2] Data in this section are drawn from Chapter 2 and Appendix A of *Who Should Be Allowed to Sell Water in California? Third-Party Issues and the Water Market*, Public Policy Institute of California, 2003. Ellen Hanak. (available for download at www.ppic.org). These data do not include transfers between farmers within the same water district, which can be substantial in some places.

Statewide water conditions have encouraged water transfers as a management strategy. Transfer activity increased substantially during the drought of the late 1980s and early 1990s, especially through the state-run Drought Water Bank and other drought-related state and federal programs. Transfers continued to increase since the mid 1990s, generally a much wetter period. Throughout this period, water transfers have primarily been from agricultural water districts, although in some wet years urban districts in Southern California have also transferred water to other users. The pattern of transfers has changed somewhat between the prolonged drought in the early 1990s and the more recent period (Figure 2). Although urban water districts were a primary destination in the early 1990s, accounting for over 40 percent of all transfers, their transfers have remained flat since the mid 1990s and now account for only 20 percent of all purchases.

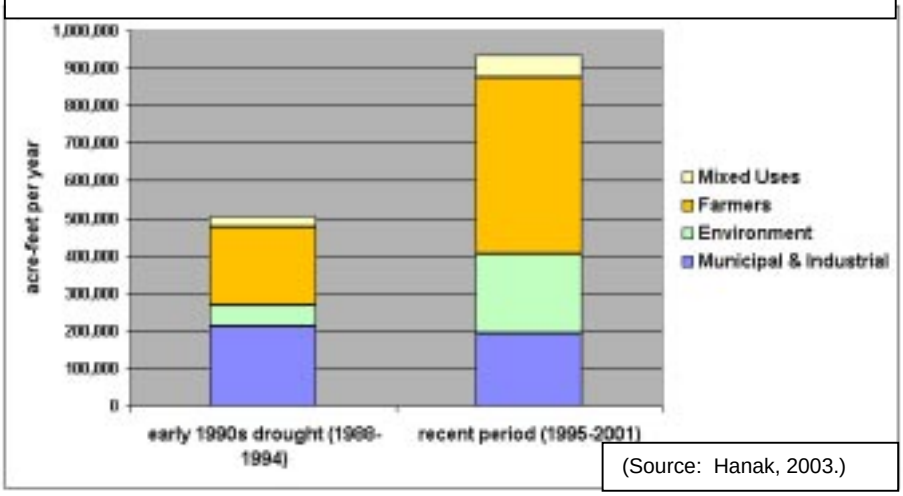
Figure 1. Temporary and Long-Term Water Transfers in California



Source: Hanak, 2003. * Note: Water-year type is measured by the Sacramento River 40-30-30 index, an indicator of water supply conditions for the state's primary river system.

Two sectors responsible for most growth in transfers have been environmental programs and agriculture. Environmental purchases to benefit wildlife refuges and instream fish populations began during the early 1990s drought. They have increased considerably under the Central Valley Project Improvement Act and CALFED's Environmental Water Account, accounting for roughly 25 percent of the total since 1995 and as much as one-third by 2001. Agricultural districts now account for half of all transfers, and have been responsible for two-thirds of growth in transfers since 1995. The bulk of this increase is destined for farmers in the San Joaquin Valley and Tulare Basin, who have turned to transfers for replacement water in response to cutbacks of contract allocations under the Central Valley Project Improvement Act. Typically, farmers purchase water on a year-to-year basis. Most long-term and permanent transfers are destined for urban users.

Figure 2. Water Transfers by Type of End-User



(Source: Hanak, 2003.)

Three regions are major participants in water transfers: the 10-county Sacramento Valley, the 8-county San Joaquin Valley and Tulare Lake Basin, and the 7-county Southern California region.[3] In most years, roughly 75 percent of transfers originate within the Sacramento and San Joaquin Valleys, with the remainder from Southern California. Overall, most transfers are between users within the same county (nearly 25 percent) or within the same region (nearly 50 percent). Interregional transfers account for the remaining 25-30 percent of transfers. Only 20 percent of these transfers are negotiated directly between parties in different regions; the rest move through programs run by DWR and USBR.

Current Oversight of Water Transfers in California

Before the Drought Water Bank program, water transfers were usually arrangements between two parties, one with extra water and one with unmet water demands. These parties would reach a mutually acceptable arrangement regarding price and quantity. Because public rights in water have always been recognized, approval by appropriate state and federal agencies has been viewed as a necessary part of the process for these independent water transfers. Transfers which involve changes in place or purpose of use of permitted or licensed water rights most often require the approval of the State Water Resources Control Board. Transfers which require the use of state or federal facilities or which may affect project operations require the concurrence or approval of DWR and/or USBR. State water law generally requires that transfers not injure any other legal user of water, not unreasonably affect fish and wildlife, and not unreasonably affect the overall economy of the county from which the water is transferred[4]. State agencies must consider the effects on public trust resources when participating in or approving water transfers.

The Drought Water Bank, Dry Year Purchase Programs, Environmental Water Account (EWA), and Central Valley Project Improvement Act have increased the role and responsibilities of state and federal agencies in the water transfer process. A large portion of water transfers each year now occur either under the guidance of, or funded by, a state or federal program. The complexity of cross-Delta transfers and the need to optimize the use of both CVP and SWP facilities, make USBR and DWR critical players in the water transfer process. The rules that govern water transfers within the SWP or CVP typically protect water users within these projects from the potential adverse effects of water transfers made by other project users.

The EWA is an element of the CALFED Bay-Delta Program's overall Management Strategy for the Bay-Delta Ecosystem that is administered, managed, and implemented by five federal and state agencies (U.S.

[3] Data availability allows regional definitions for county groupings, but not DWR's hydrologic regions. Notably, Southern California includes both the South Coast and Colorado River hydrologic regions (Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties), and the San Joaquin Valley includes both the San Joaquin River and Tulare Lake hydrologic regions (Fresno, Kings, Kern, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties). Sacramento Valley counties include Butte, Colusa, Glenn, Placer, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba.

[4] California Water Code Section 1810 *et seq*. specifies the requirements that must be met in order for DWR and other regional and local agencies to allow use of their conveyance facilities. Also, Water Code Sections 386, 1702, 1706, 1727 and 1736 follow the common law and establish similar requirements for changes in water rights. Strictly speaking, economic issues are typically only required to be evaluated in water transfers that seek to utilize DWR's water conveyance facilities or those of other State or local agencies. However, economic impacts that are associated with physical changes to the environment may require analysis under the California Environmental Quality Act (CEQA).

Bureau of Reclamation, California Department of Water Resources, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of Fish and Game). EWA's purpose is to provide protection to the fish of the Bay/Delta Estuary through environmentally beneficial changes in the operations of the CVP and SWP at no uncompensated water cost to the projects' users. EWA reduces Delta exports or provides other modifications to CVP and SWP operations at critical times for added protection to at risk fish species above that provided by the existing regulatory baseline. These changes in operations can cause reductions in water supply to users south of the Delta. Therefore, EWA obtains water to replace the water not delivered to CVP and SWP contractors in the Delta export service areas due to these changes in CVP or SWP operations by EWA.

Enactment of the Central Valley Project Improvement Act (CVPIA) in October 1992 provided new authority and expanded flexibility to Reclamation to allow transfers of federally developed water. One purpose of the CVPIA is to improve CVP operational flexibility and increase water-related benefits provided by the CVP through expanded use of voluntary water transfers. The water transfer provisions of the CVPIA govern the transfer of CVP water. These provisions authorize CVP users to transfer, subject to certain conditions, all or a portion of contract water to any California water user or agency, state or federal agency, Indian Tribe or private nonprofit organization for any purpose recognized as beneficial under state law.

Controversy regarding the effects on water users, fish and wildlife, and local economies strained the Drought Water Banks of the early 1990s. In response, DWR and USBR developed guidelines for implementing water transfers conducted within their areas of responsibility. The purpose of the guidelines is to help resolve issues and clarify the technical aspects of water transfers that need consideration when contracting with these agencies to either sell or convey water made available through water transfers.

DWR and USBR Water Transfer Guidelines

- DWR has published water transfer guidelines in a series of white papers available on DWR's Water Transfers Office Web site /www.watertransfers.water.ca.gov
- Reclamation, upon enactment of CVPIA, issued "Interim Guidelines for the Implementation of the Water Transfer Provisions of Central Valley Project Improvement Act", available from Reclamation's Water Transfer Program office.

In addition, DWR and water districts in northern California have begun to develop better mechanisms to respond to concerns over potential transfer effects on local water users and the environment. Cooperative monitoring and rapid response programs have been implemented to identify and protect or mitigate potential impacts on groundwater levels from groundwater substitution programs. Data from monitoring programs and open communication with parties that could be affected have helped identify groundwater issues as they developed and before adverse impacts became serious. Districts took actions to halt pumping, deepen wells, and work with parties that could be affected to prevent or mitigate impacts caused by water transfers.

Local leadership and initiative are also needed to implement water transfers. Water transfers are typically proposed by local water agencies and can benefit from local community involvement in the development of these proposals. Some counties have passed local ordinances to regulate groundwater extraction for water transfer purposes. With adequate public notice, disclosure of proposals and meaningful public

participation, local communities can best assess their area's water demands and supplies and determine if there is potential for transferring water outside of the local region.

An example of local leadership in implementing water transfers is the December 1988 Water Conservation Agreement (Agreement) between Imperial Irrigation District (IID) and Metropolitan Water District of Southern California (MWD) and in the December 1989 Approval Agreement among IID, MWD, Palo Verde Irrigation District (PVID) and Coachella Valley Water District (CVWD). The Agreement provided for water conservation from 17 projects to be constructed by IID under the Program. Projected water conservation, when the final project was placed into operation, was 106,110 acre-feet (AF) of water per year. MWD funded all costs of the new projects in return for having this additional amount of Colorado River water available for diversion through its Colorado River Aqueduct.

The Agreement called for a Program Coordinating Committee (PCC) to secure effective cooperation and interchange of information and to provide consultation, review, and approval on a prompt and orderly basis between IID and MWD in connection with various financial, economic, administrative, and technical aspects of the Program. The Approval Agreement called for a Water Conservation Measurement Committee (WCMC) to provide an orderly basis, among the parties, for verification of the amount of water conserved and different amounts conserved by the individual projects. All Program actions of the PCC are to be approved by a majority vote. WCMC decisions, however, are to be approved by unanimous vote. If unanimity is lacking, the matter is taken up according to a dispute resolution procedure set forth in the Approval Agreement.

Potential Benefits from Water Transfers

For receiving areas, water transfers have the potential of reducing economic disruption, maintaining community stability, and improving environmental conditions that can deteriorate with water scarcity. Sellers can use the compensation from transfers to fund beneficial activities, although there is no guarantee that benefits to the seller will benefit the source area as a whole. Compensation from most transfers involving agricultural water goes directly to the participating landowner. In some cases, compensation goes to water districts, which can use the income to reduce water rates, improve facilities, or improve environmental conditions. For example, Western Canal Water District used proceeds from drought water bank sales to remove diversion dams and reconfigure its canals to reduce impacts on threatened spring-run salmon. Farmers can reinvest back into the farming business. Transfers by regional water agencies can provide additional resources to benefit the entire community. For example, the Yuba County Water Agency has used over $10 million from the proceeds of water transfers over the past several years to fund needed flood control projects.

In addition to the approximately 1.2 MAF transferred annually in recent years, there are several long-term transfers pending or approved since 2003 shown in Table 1. These include transfers under the Colorado River Quantification Settlement Agreement. Beyond those transfers shown in Table 1, economic studies[5] indicate that about 300 TAF in the Sacramento Valley and 400 TAF in the San Joaquin Valley could be made available through crop idling without unreasonably affecting the overall economy of the county from where the water would be transferred. These studies estimate that the economic effects of idling up to 20 percent of the rice land in the Sacramento Valley and up to 20 percent of the cotton lands in the San Joaquin Valley in any given year are near 1 percent or less of the county-wide economy, except in Glenn

[5] Studies conducted for preparing the Public Draft EIR/EIS for the Environmental Water Account dated July, 2003.

and Colusa counties where the impact would be less than 5 percent of the county-wide economy. The amount of land that would be idled is less than 10 percent of the total agriculture lands in these counties. The studies did not evaluate the economic effects of crop idling on commodity markets.

Table 1. Pending or Approved Long-Term Water Transfers[6]

Seller	Buyer	Maximum Annual Acre-feet	Duration (years)	Purpose (from/to)
Imperial ID	San Diego County WA	200,000	45-75	Agriculture to Agriculture and Urban
Imperial ID	Coachella Valley WD	103,000	45-75	Agriculture to Agriculture
Imperial ID	Metropolitan WDSC	110,000	54-90	Agriculture to Urban
Butte WD	Madera ID and Root Creek WD	15,000	25	Agriculture to Urban
Merced ID	U.S. Fish and Wildlife	47,000	10	Agriculture to Environment
Palo Verde ID	Metropolitan WDSC	111,000	35	Agriculture to Urban
South San Joaquin ID	Cities of Tracy, Escalon, Manteca, and Lathrop	75,000	25	Agriculture to Urban
	Total	629,000		

A statewide economic-engineering optimization study by the University of California, Davis (Jenkins, et al. 2001; Newlin et al. 2002) highlights potential benefits of water transfers to meet forecasted future water scarcity. Results suggest that by 2020 water transfers combined with conjunctive management and various operational changes could provide additional economic benefits as high as $1.3 billion per year statewide by reducing forecasted economic impacts of water scarcity as much as 80 percent. Almost all of the benefit comes from intra-regional water transfers and operational improvements within five regions of California, especially in southern California. The study indicates that the maximum reduction in deliveries to a major water user would be 15 percent with most transfers averaging much less. The study concludes that only a small proportion of California's water need be transferred to achieve significant economic benefits. Much of the added benefits would be from increased flexibility added to the water management system through reoperation of surface water and groundwater supplies using conjunctive management. These results represent a simplification of California's water management system and do not address legal and institutional barriers that may prevent full implementation.

Potential Costs of Water Transfers

The direct costs of completing a water transfer includes more than just the sale price of water, which is typically at the last point the seller controls the water. Additional direct costs to the buyer include conveyance, storage, and treatment costs, and seepage losses between the location and time of sale and the place and time that the water is used by the buyer. Sale prices reflect the cost to make the water physically available and, in some cases, added monitoring or mitigation needed to ensure compliance with federal and State Legislative guidance related to water transfers. The buyer typically arranges for transferred water to be conveyed to their area of use. Conveyance costs can be significant, as much as the price paid to the seller. For example, prices paid to the seller in 2002 and 2003 for the Environmental Water Account and Dry Year Water Purchase Programs operated by DWR ranged from $75 to $185 per

[6] Data in this table are updated from Table A.5 of Ellen Hanak, *Who Should Be Allowed to Sell Water in California? Third-Party Issues and the Water Market*, Public Policy Institute of California, 2003 (available for download at www.ppic.org). These data do not include transfers between farmers within the same water district, which can be substantial in some places.

acre-foot. The lower prices reflect a source in Northern California and the higher prices reflect the price to EWA of banked groundwater and conveyance costs in Kern County in years of 50 percent State Water Project allocations.

In addition to the direct costs of a water transfer to the receiving areas, indirect costs to third parties also can occur, and there could be impacts to other water users and the environment from water transfers. These concerns are discussed under the issues that follow.

Major Issues Facing Water Transfers

The major issues facing water transfers are:

Maintaining agricultural productivity

Because most water transfers come from agriculture, it is important to include the protection of agricultural productivity and economic benefits in water transfer policies. A key challenge is to balance the ability of agriculture to provide water for transfers on a periodic basis to help with temporary water scarcity with limits so that transfers do not destabilize California's agricultural productivity and economy.

Balanced Approach to Regulating Transfers

There is a concern by some that existing state laws and oversight of water transfer are not adequate to protect the environment, third parties, public trust resources, and broader social interests that may be affected by water transfers. This is particularly the concern for water transfers involving pre-1914 water rights, which are not subject to regulation by SWRCB, and transfers that involve pumping groundwater or crop idling and crop shifting. Conversely, there is also concern that efforts to more heavily regulate water transfers may unnecessarily restrict many short-term, intra-regional transfers that have multiple benefits during temporary supply shortages and that have little likelihood of direct or indirect impacts. The key issue is how to balance these concerns to allow water transfers to continue as a viable water management strategy while having mechanisms to minimize effects on others.

Environmental Concerns

Environmental consequences of transfers could occur in three places: the area *from* which water is transferred, the area *through* which water is conveyed and the area *to* which water is transferred. Cumulative effects of short- and long- term transfers could have impacts on habitat, water quality, and wildlife caused by substituting groundwater for surface water, changing the location, timing, and quantity of surface diversions, or changing crop patterns through crop shifting or idling. For example, rice growing areas could have significant secondary benefits as wildlife habitat. Transfers that involve crop idling in these areas could either harm or benefit wildlife depending on implementation. Transfers that involve increased groundwater pumping also raise concerns over groundwater overdraft and the long term sustainability of groundwater resources. In addition, long term water transfers that induce new urban development in the receiving area may have environmental impacts.

Using Limited Duration Transfers for Long-Term Demands

There is a concern that transfers of limited duration are being used for long-term demands. For example, transfers under the Environmental Water Account, Central Valley Project Improvement Act, and related programs are designed to improve environmental conditions. Because these transfers rely on public funding that may not exist every year, they may not provide long term protection for the environment. There is also a concern that urban areas may use limited duration transfers to accommodate population

growth with water supplies that are not sustainable. Finally, there is a concern that agricultural areas may use limited duration transfers to supply crops, such as orchards, that cannot be easily scaled back during droughts.

Economic Concerns

Short term, out-of-county transfers created through extensive crop idling can reduce production and employment of both on farm and secondary economic sectors resulting in reduced tax revenues and increased costs for farmers not participating in the transfer. Extensive idling of crops that resulted in unemployment of manual laborers could be considered unfair treatment under the state's environmental justice policies (see Government Code Section 65040.12). In addition reduced revenues could affect local governments disproportionately with potential impacts to spending on a wide range of services provided by local government. Long-term transfers could result in similar impacts even though the amount of fallowed land may be less. For long-term transfers, impacts to other elements of the local community (schools, businesses etc.) may be more widespread and severe. Transfers of surface water that are replaced by increasing groundwater pumping may drop groundwater levels and increase the pumping costs to other groundwater users.

State law generally requires that water transfers not unreasonably affect the overall economy of the county from which the water is transferred (referred to as source areas). However, there is potential for some economic disruption to source areas depending on the source of transferred water, the amount of water transferred, and the duration of the transfer. A review of past water transfers has not shown long-term economic impacts to source areas. There is a concern that these areas could experience long-term economic impacts if transfers become more widespread. Water scarcity can also cause economic impacts, both where the shortage occurs and far beyond. Water transfers can help reduce water scarcity in areas receiving transfers thereby helping to avoid job losses and secondary economic impacts in these areas.

Quantifying Uncertainties and Effects on Others

Transfers, especially those where water is moved long distances, are limited by several factors including access to and physical capacity of conveyance systems, environmental and water quality regulations, losses along the flow path, linkages between surface water and groundwater movement and use, and other factors that are difficult to quantify or anticipate. Those who traditionally relied on return flows from upstream areas as a source of supply are concerned about changes in timing and quantity of flows resulting from water transfers or water conservation measures. Quantifying the actual water savings from crop shifting and crop idling is particularly difficult because only the consumptive use by the crop is transferable in most cases. There is a risk that estimates of the water supply benefits from the transfer to the water system (estimates of "real water") will be inaccurate and that the transfers have unintended consequences to other water users, local economies, or the environment. A key challenge is to improve methods for quantifying these uncertainties and to include adequate monitoring and assurances when implementing water transfers. Monitoring is particularly critical for transfers that either result in water savings from crop idling, crop shifting, or increase groundwater use. Information may be needed on historical and current land use and water use, groundwater levels, land subsidence, water quality, environmental conditions, and surface water flows.

Need For More Integrated Management of Water Resources

In California, authority is separated among local, state and federal agencies for managing different aspects of groundwater and surface water resources. Several examples highlight this: 1) SWRCB has jurisdiction

for appropriative water rights dating from 1914, but disputes over appropriative water rights dating before 1914 are settled by the court system; 2) Similarly, SWRCB has jurisdiction over groundwater quality, but disputes over groundwater use are settled by the court system ; 3) County groundwater ordinances and local agency groundwater management plans often only apply to a portion of the groundwater basin, and those with overlapping boundaries of responsibility do not necessarily have consistent management objectives. Failure to integrate water management across jurisdictions makes it difficult to develop transfers with multiple benefits, provide for sustainable use of resources, identify and protect or mitigate potential impacts to third parties, and ensure protection of legal rights of water users, the environment, and public trust resources.

Infrastructure and Operational Limits

The ability to optimize the benefits of water transfers depends on access to and the physical capacity of existing conveyance and storage facilities. For example, when export facilities in the Delta are already pumping at full capacity, transferable water cannot be moved. This occurred in 2003 when the Metropolitan Water District of Southern California (MWDSC) negotiated water transfers with growers in the Sacramento Valley but was unable to move water through the Delta where the conveyance system was flowing full, or to store the water in Lake Oroville, which filled with late spring rain. The ability to convey water is also an important aspect of the potential water transfer between the Imperial Irrigation District and the San Diego County Water Authority, which requires access to the Colorado River Aqueduct owned and operated by MWDSC.

Recommendations for Water Transfers

1. Since local government and water agencies have the lead role in developing and implementing water transfers they should:
    a. Develop groundwater management plans to guide implementation of water transfers that increase groundwater use or that could impact groundwater quality.
    b. Implement monitoring programs that evaluate potential specific and cumulative impacts from transfers, provide assurances that unavoidable impacts are mitigated reasonably, and demonstrate that transfers comply with existing law.
    c. Evaluate and implement regional water management strategies to improve regional water supplies to meet municipal, agricultural, and environmental water demands and minimize the need of importing water from other hydrologic regions.
    d. Provide for community participation when addressing conflicts caused by transfers within their jurisdictions.
2. State and federal agencies, in addition to implementing state and federal law, should assist with resolving potential conflicts over water transfers when local government and water agencies are unable to do so and when there are overriding state or federal concerns.
3. State and federal agencies, working through the CALFED Water Transfers Program, continue to gain consensus on how best to implement water transfers. The following actions are on-going and should be continued and improved:
    a. Preparing programmatic and site specific CEQA/NEPA documents to assess cumulative effects of inter-regional transfers anticipated to occur under the Environmental Water Account and Sacramento Valley Water Management Agreement.
    b. The SWRCB, DWR, and DFG must consider whether the transfer is likely to harm public trust resources, such as fish and wildlife, and must protect trust resources whenever feasible. The SWRCB and DWR, after considering all available information, including CEQA

documents or other environmental documents and the input of DFG, may put conditions on transfer to protect trust resources. If the SWRCB or DWR find that proposed transfer will cause undue harm to trust resources, they may (1) add terms to avoid the harm (2) the SWRCB may deny the petition or (3) DWR may deny the use of its facilities. In many cases, transfers will not result in harm to trust resources.

c. Under Section 1802 of the Fish and Game Code, DFG must exercise its responsibilities as trustee for the resources of the state with jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species.
d. Improving conditions in the Delta and identifying and reducing statewide conveyance limitations.
e. Streamlining the approval process of state and federal agencies for water transfers while protecting water rights, the environment, and local economic interests.
f. Working with agencies proposing water transfers that move water through the Delta to monitor and evaluate short-term, long-term, and cumulative effects that could impact the condition of the Bay-Delta ecosystem.
g. Refining current methods on how to identify and quantify water savings for transfers using crop idling and shifting. This should be accomplished through a collaborative process that considers methods developed by others.
h. Developing, with interested parties, acceptable ways to identify, lessen, and distribute economic impacts from transfers that use crop idling and shifting.
i. Providing financial assistance for local and regional groundwater management activities that promote sustainable and coordinated use of surface water and groundwater.
j. Seeking consensus among interested parties about the role of water transfers as a water management strategy while identifying and protecting or mitigating potential impacts to other water users, third parties, the environment, and public trust resources.
k. Providing technical assistance and guidelines for assessing cumulative impacts of the anticipated effects of proposed transfers, including concurrent or consecutive one-year transfers within the same region, on other water users, local economies, and the environment.

4. State and federal agencies, working through the CALFED Water Transfers Program, should implement the following actions to improve management of water transfers:
    a. Improve coordination and cooperation among local, state, and federal agencies with different responsibilities for surface water and groundwater management to facilitate sustainable transfers with multiple benefits, allow efficient use of agency resources, and promote easy access to information by the public.
    b. Develop water transfer policies that balance the ability of agriculture to provide water for transfers on a periodic basis to help with temporary water scarcity with limits so that transfers do not destabilize agricultural productivity and economic benefits.
    c. Facilitate cooperation between agencies proposing water transfers and regulatory agencies to obtain multiple benefits from proposals. For example, transfers intended for urban or agricultural use may also be scheduled to enhance flows for aquatic species in areas between the seller and buyer.
    d. Implement water transfers, when serving as a purchaser, in cooperation with local partners, consistent with state water and environmental laws, and at a fair price.

Information Sources

- CALFED. Water Transfer Program Plan. July 2000
- CALFED. Programmatic Record of Decision. August 29, 2000.
- DWR. Water Transfer Papers for Water Transfers in 2002 Involving the Department of Water Resources (Draft 3-8-02) (www.watertransfers.water.ca.gov)
- DWR. Draft EIR/S for the Environmental Water Account. July 2003.
- Governor's Advisory Drought Planning Panel. Critical Water Shortage Contingency Plan. December 29, 2000.
- Hanak, Ellen, "Who Should Be Allowed to Sell Water In California? Third-Party Issues and the Water Market". Public Policy Institute of California. San Francisco, CA, June 2003.
- Jenkins, M.W., et al, "Improving California Water Management: Optimizing Value and Flexibility," University of California, Davis, CA, http://cee.engr.ucdavis.edu/faculty/lund/CALVIN/, 2001.
- Newlin, B.D., M.W. Jenkins, J.R. Lund, and R.E. Howitt, "Southern California Water Markets: Potential and Limitations," Journal of Water Resources Planning and Management, ASCE, Vol. 128, No. 1, pp. 21-32, January/February 2002.SWRCB. A Guide to Water Transfers (DRAFT). July 1999.
- SWRCB. "Water Transfer Issues in California: Final Report to the California State Water Resources Control Board by the Water Transfer Workgroup". June 2002.